

What is claimed is:

- 1 1. A method for measuring a wheel alignment angle, the method comprising:
2 attaching to a wheel a measurement head including an accelerometer; and
3 measuring, with the accelerometer, a wheel angle with respect to gravity.
- 1 2. The method of claim 1, wherein the accelerometer comprises a micro-
2 electromechanical systems (MEMS) device.
- 1 3. The method of claim 1, wherein the accelerometer includes a solid proof mass.
- 1 4. The method of claim 1, wherein the accelerometer measures internal changes in heat
2 transfer caused by acceleration.
- 1 5. The method of claim 1, further comprising:
2 calculating, by a computing device, at least one wheel alignment parameter based on
3 the measured angle.
- 1 6. The method of claim 5, wherein the wheel alignment parameter includes at least one
2 of toe, camber, and steering axis inclination.
- 1 7. A method for measuring a wheel alignment angle, the method comprising:
2 attaching to a wheel a measurement head including an accelerometer;
3 operatively connecting a thermal sensor to the accelerometer;
4 measuring, with the accelerometer, an uncompensated wheel angle;
5 measuring, with the thermal sensor, a temperature to which the accelerometer is
6 subjected; and
7 calculating a compensated wheel angle as a function of the uncompensated wheel
8 angle and the measured temperature.
- 1 8. The method of claim 7, wherein the accelerometer comprises a micro-
2 electromechanical systems (MEMS) device.

- 1 9. The method of claim 7, wherein the accelerometer includes a solid proof mass.
- 1 10. The method of claim 7, wherein the accelerometer measures internal changes in heat
2 transfer caused by acceleration.
- 1 11. A measurement head for a wheel alignment system, the measurement head
2 comprising:
3 an accelerometer configured to measure an uncompensated wheel angle with respect
4 to gravity;
5 a thermal sensor configured to measure a temperature to which the accelerometer is
6 subjected; and
7 a compensator operatively coupled to the accelerometer and the thermal sensor and
8 configured to calculate a compensated wheel angle as a function of the
9 uncompensated wheel angle and the measured temperature.
- 1 12. The measurement head of claim 11, further comprising:
2 a memory component operatively coupled to the compensator and configured to store
3 at least one of a plurality of angles and corresponding temperatures and an
4 adjustment function.
- 1 13. The measurement head of claim 11, wherein the accelerometer comprises a thermal
2 accelerometer and the compensator is further configured to compensate for sensitivity and for
3 zero gravity offset of the thermal accelerometer.
- 1 14. The measurement head of claim 11, wherein the compensator implements a feedback
2 control loop to compensate for at least one of thermal sensitivity and zero gravity offset.
- 1 15. The measurement head of claim 11, wherein the compensator implements an
2 approximation using at least two temperature points for calculating zero gravity offset.
- 1 16. A wheel alignment system comprising:

2 a measurement head including an accelerometer configured to calculate a wheel angle
3 with respect to gravity; and
4 a computing device operatively coupled to the measurement head and configured to
5 receive the wheel angle and to compute a wheel alignment parameter based on
6 the wheel angle.

1 17. The wheel alignment system of claim 16, wherein the wheel alignment parameter
2 includes at least one of toe, camber, and steering axis inclination.

1 18. The wheel alignment system of claim 16, wherein the accelerometer comprises a
2 micro-electromechanical systems (MEMS) device.

1 19. The wheel alignment system of claim 16, wherein the accelerometer includes a solid
2 proof mass.

1 20. The wheel alignment system of claim 16, wherein the accelerometer measures internal
2 changes in heat transfer caused by acceleration.